FIG.1

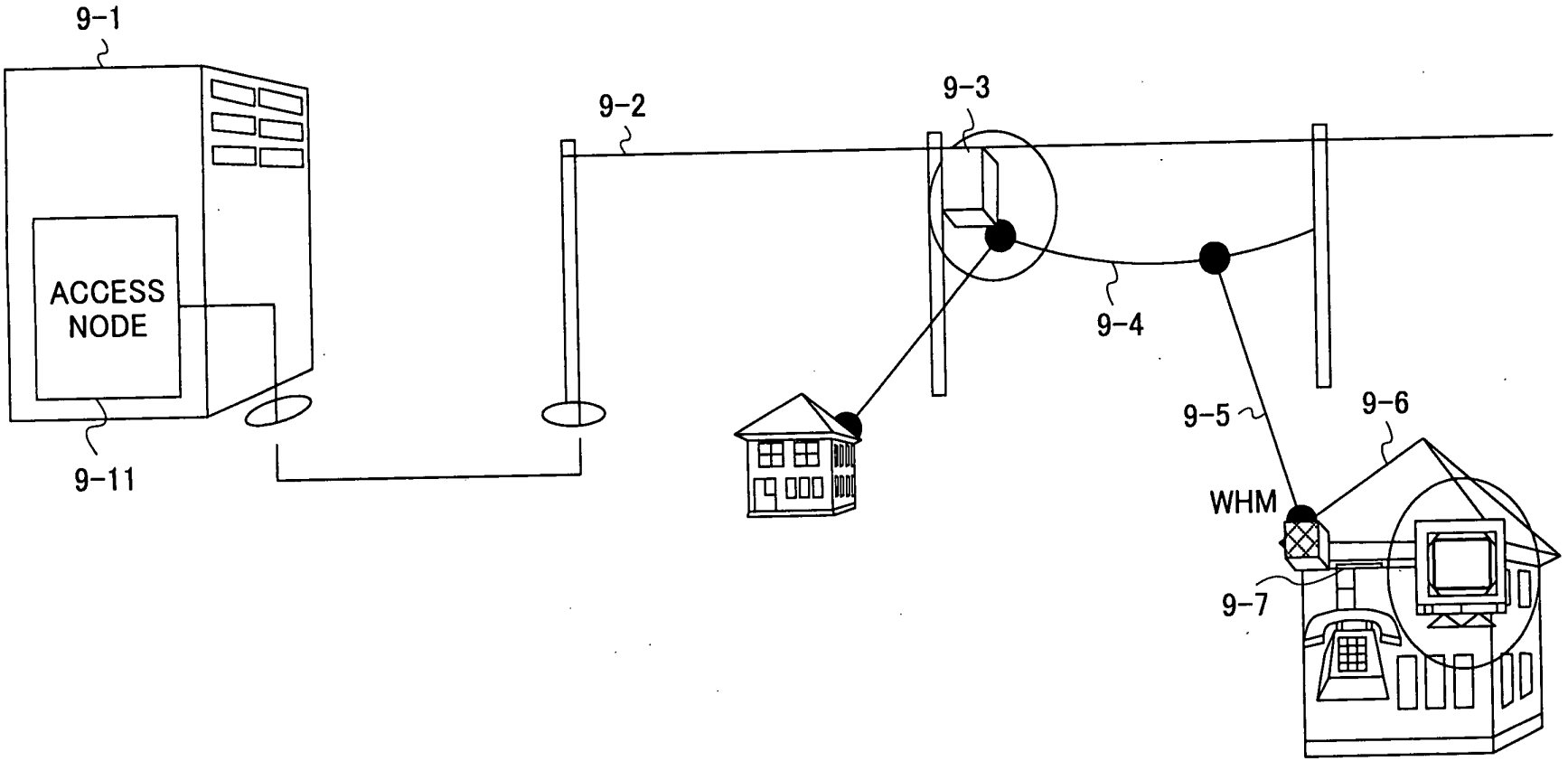


FIG.2A

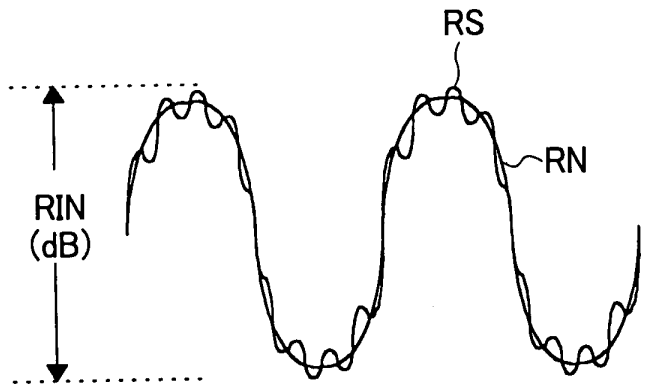


FIG.2B

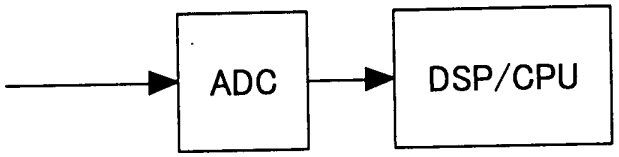


FIG.3 PRIOR ART

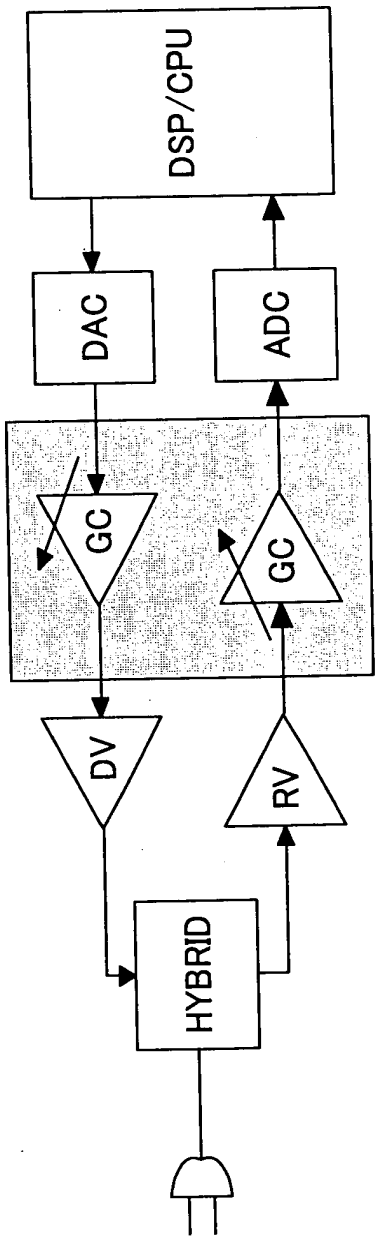


FIG.4

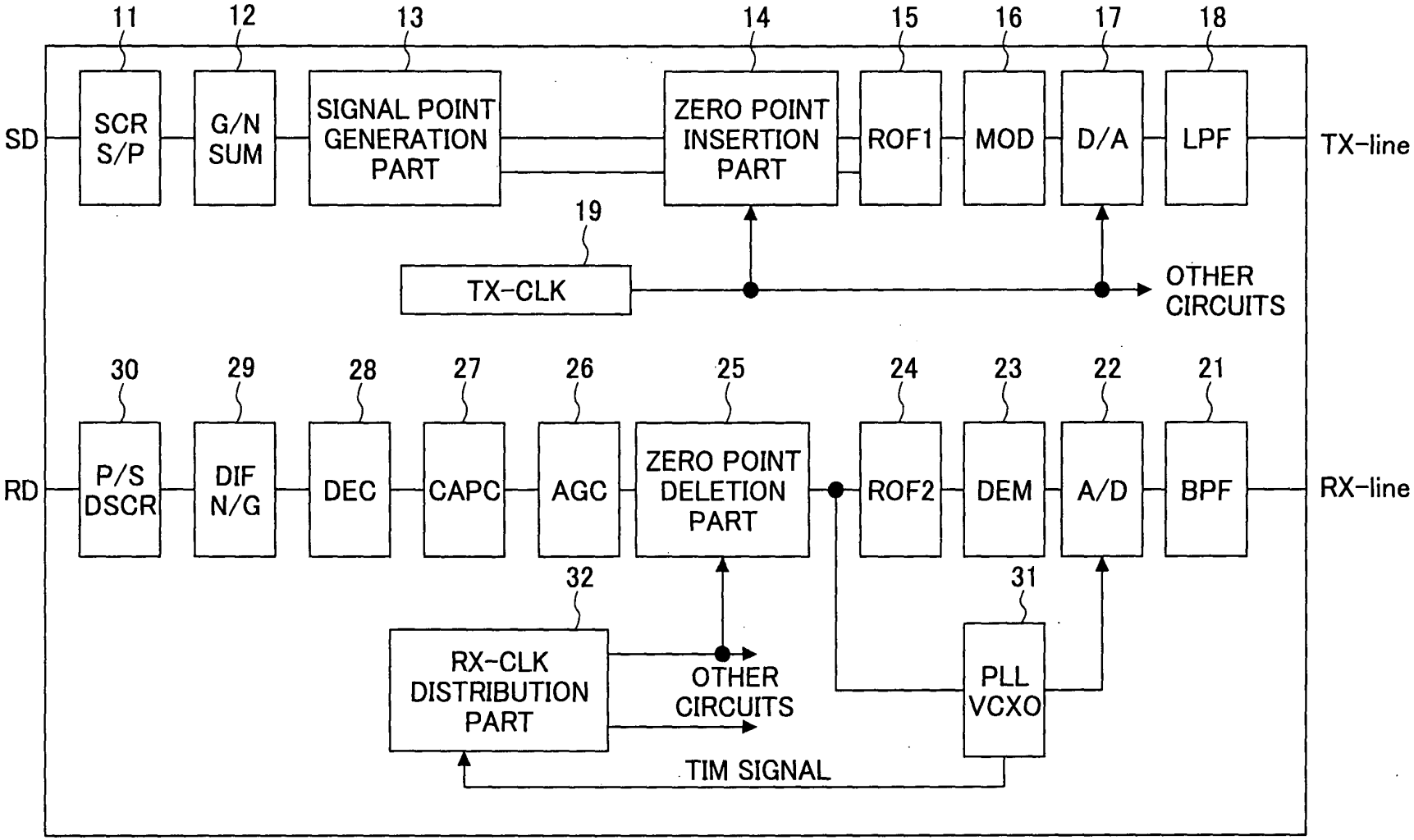

11
12
13
14
15
16
17
18
SD
SCR S/P
G/N SUM
SIGNAL POINT GENERATION PART
ZERO POINT INSERTION PART
ROF1
MOD
D/A
LPF
TX-line
19
TX-CLK
OTHER CIRCUITS
30
29
28
27
26
25
24
23
22
21
RD
P/S DSCR
DIF N/G
DEC
CAPC
AGC
ZERO POINT DELETION PART
ROF2
DEM
A/D
BPF
RX-line
32
31
RX-CLK DISTRIBUTION PART
OTHER CIRCUITS
PLL VCXO
TIM SIGNAL

FIG.5

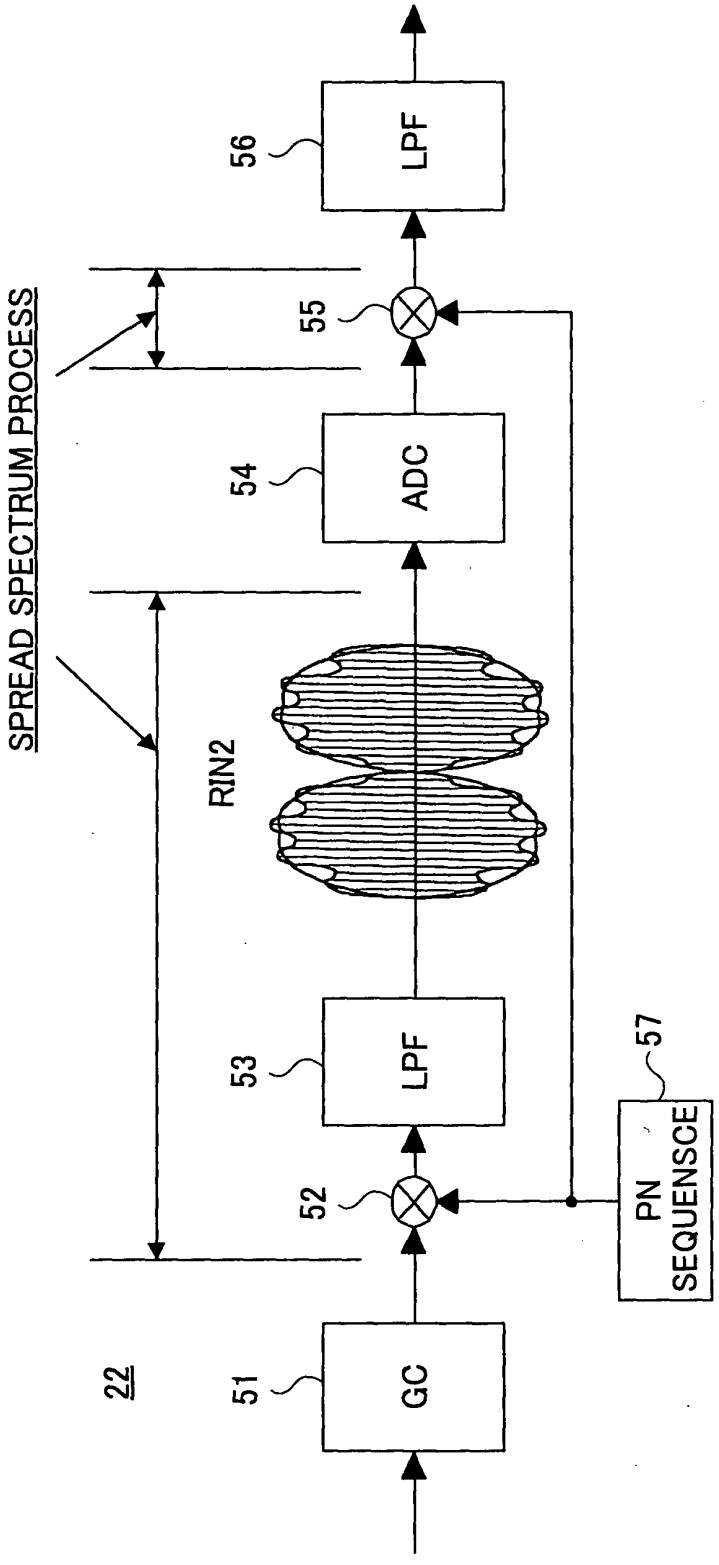

22
51
GC
52
53
LPF
54
ADC
55
56
LPF
57
PN SEQUENSCE
RIN2
SPREAD SPECTRUM PROCESS

FIG.6D

FIG.6E

FIG.6B FIG.6A

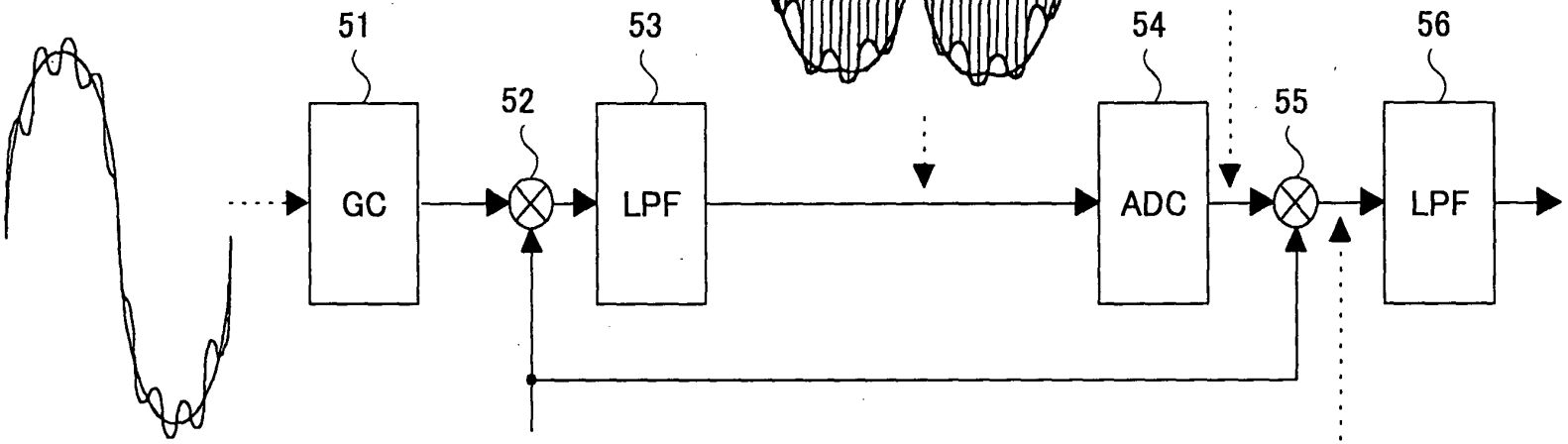


FIG.6F

FIG.6C

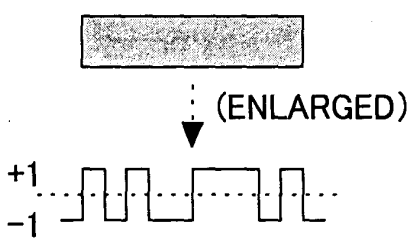


FIG.7A

FIG.7B

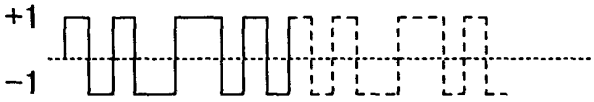


FIG.7C

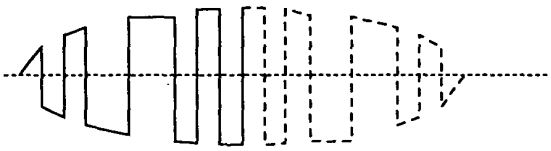
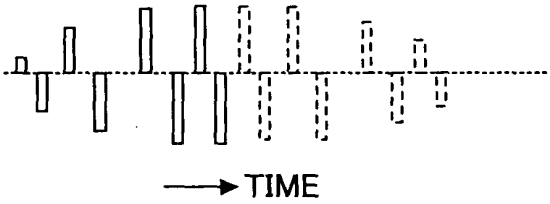


FIG.7D

FIG.7E



PRIOR ART

FIG.8A

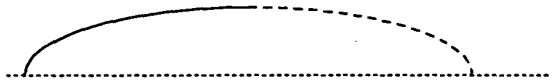


FIG.8B

FIG.8C

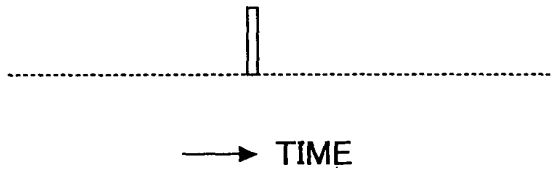


FIG.9A

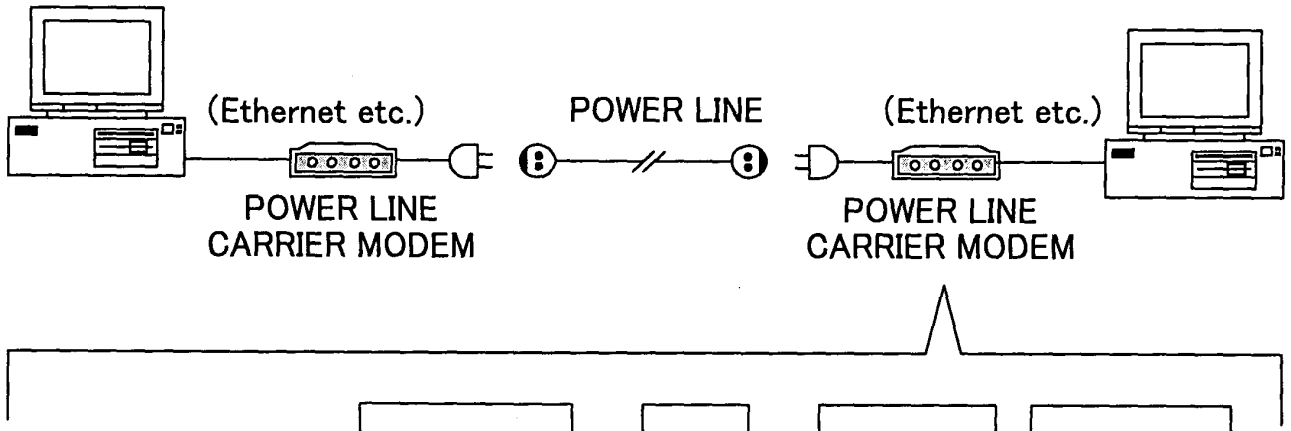

(Ethernet etc.)
POWER LINE
(Ethernet etc.)
POWER LINE
CARRIER MODEM
POWER LINE
CARRIER MODEM

FIG.9B

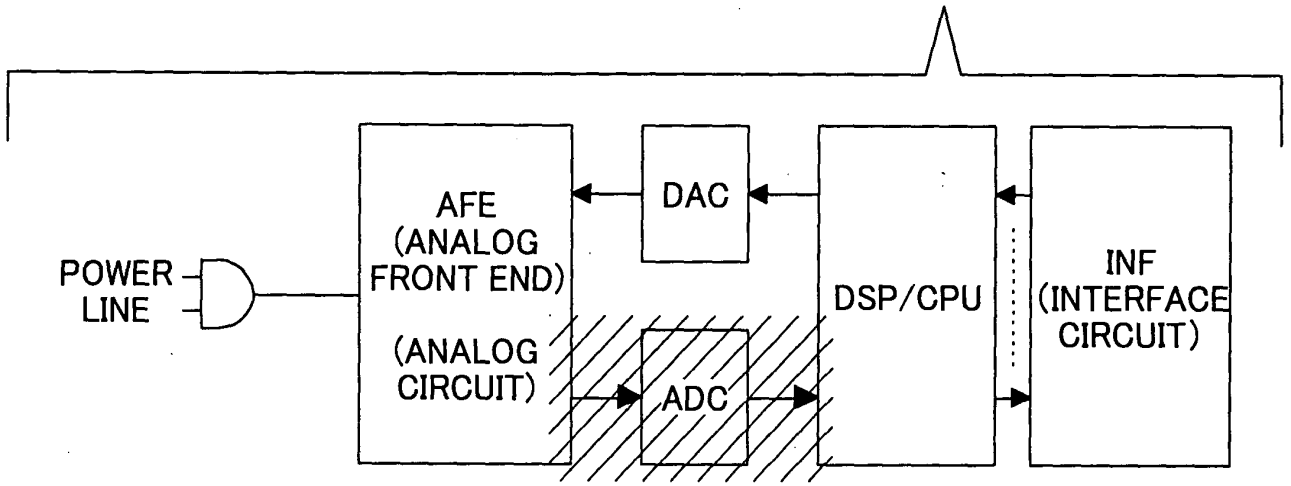
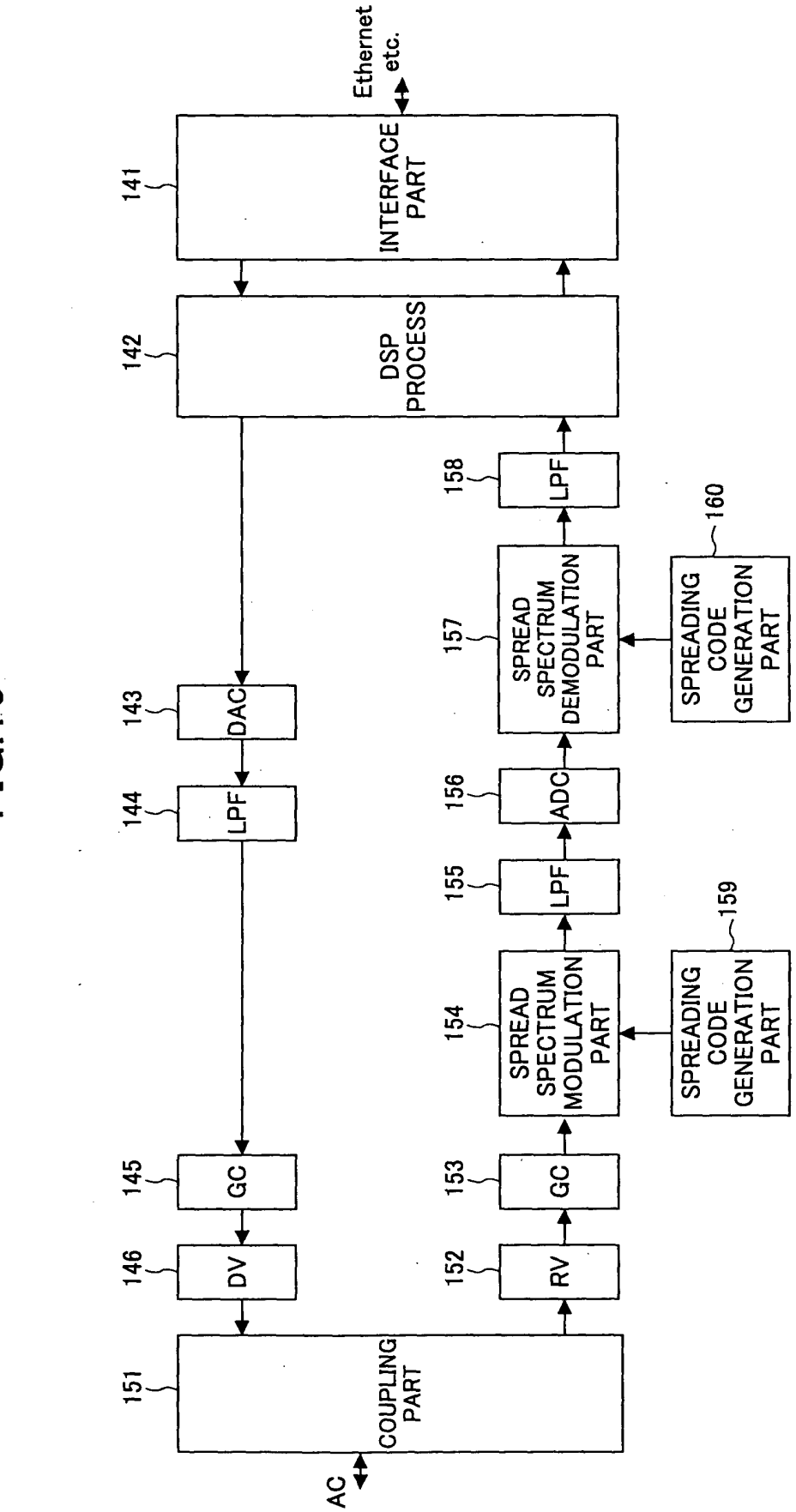

POWER
LINE
AFE
(ANALOG
FRONT END)
(ANALOG
CIRCUIT)
DAC
ADC
DSP/CPU
INF
(INTERFACE
CIRCUIT)

FIG.10


Ethernet etc.
141
INTERFACE PART
142
DSP PROCESS
143
DAC
144
LPF
145
GC
146
DV
151
COUPLING PART
AC
152
RV
153
GC
154
SPREAD SPECTRUM MODULATION PART
155
LPF
156
ADC
157
SPREAD SPECTRUM DEMODULATION PART
158
LPF
159
SPREADING CODE GENERATION PART
160
SPREADING CODE GENERATION PART